

IN THE SPECIFICATION

Please amend the cited specification paragraphs as follows:

[2] Machines that utilize high speed components, such as an aircraft engine, produce high frequency vibrations. The high frequency vibrations are typically on the order of of kilohertz and impose a variety of fluctuating high cycle fatigue stresses on the high speed components of the machine. Often, the limiting factor in the life of a high speed component is high cycle fatigue stress. While the present invention is described in the context of a turbine blade, it will be recognized that the invention is not so limited.

[22] Figure 1 shows a cross sectional schematic view of an aircraft engine 2. The aircraft engine 2 includes an engine casing 3 that houses a fan 4 that is in fluid communication with a ~~and~~ compressor 5. The compressor 5 includes impellers 6 that pressurize air in the aircraft engine 2. The impellers 6 are attached to a rotatable shaft 7 that rotates around axis 8. When the shaft 7 rotates, the impellers 6 rotate. A combustor 9 is in fluid communication with pressurized gas that exits from the compressor 5. The combustor 9 combusts the pressurized gas. A turbine 10 receives the combusted pressurized gas and converts it into energy that is used to rotate the shaft 7 and power the compressor 5. The turbine 10 includes a rotor 11 that is attached to the shaft 7, and turbine blades 13 that are attached to the rotor 11.

[27] The example in Figure 3 refers to a sketch of a single crystal unit of the crystal structure of a base metal used, for example, to form the aircraft engine turbine blade 13. The single crystal unit 19 has known crystallographic directions, for example the $\langle 100 \rangle$ direction represented by the line 20, $\langle 110 \rangle$ represented by the line 21, $\langle 111 \rangle$ represented by the line 22, $\langle 112 \rangle$ ~~$\langle 110 \rangle$~~ represented by the line 24, and $\langle 123 \rangle$ represented by the line 26. For engineering purposes, the crystallographic direction refers to the approximate coordinate direction within about a ten degree cone angle 28 of the exact direction.